Amendments to the Claims:

1. (Currently amended) A method of reducing internal ply edges in a composite laminate having two or more zones, wherein the zones have various numbers of plies having different properties, the method comprising the steps of:

determining the number of plies having each property required in each zone;

generating a master zone that notionally includes, for plies having each different property, the maximum number of plies having a respective property required in any one zone;

sequencing the plies of the master zone using a predefined series of design rules to define a stacking sequence of plies in the master zone; ~~and~~

arranging the plies of each zone based upon the stacking sequence of plies in the master zone; and

providing instructions configured to at least partially direct manufacture of the composite laminate based upon an arrangement of the plies of each zone.

2. (Original) A method according to Claim 1 wherein determining the number of plies comprises determining the number of plies of each different fiber orientation.

3. (Original) A method according to Claim 1 wherein determining the number of plies comprises determining the number of plies of each different material.

4. (Original) A method according to Claim 1 wherein arranging the plies of each zone comprises preventing cross-overs of plies of neighboring zones.

5. (Original) A method according to Claim 1 wherein arranging the plies of each zone comprises calculating values for a second predefined series of design rules for each zone.

6. (Original) A method according to Claim 1 wherein arranging the plies of each zone comprises utilizing a transformation matrix for each zone to correlate the plies of the master zone to the plies of each zone.

7. (Original) A method according to Claim 6 wherein arranging the plies of each zone comprises the steps of:

calculating a weighted solid/void differential for each zone; and

minimizing the weighted solid/void differential for each zone.

8. (Original) A method according to Claim 7 wherein calculating the weighted solid/void differential comprises the steps of:

subtracting a solid edge length of a single ply of the zone from a void edge length of the single ply of the zone to determine a difference; and

summing all the differences of the plies of the zone.

9. (Original) A method according to Claim 8 wherein calculating the weighted solid/void differential comprises normalizing the solid edge lengths and the void edge lengths before subtracting the solid edge length from the void edge length.

10. (Original) A method according to Claim 1, further comprising the step of determining the number of zones for the composite laminate prior to the determining the number of plies step.

11. (Currently amended) A method of reducing internal ply edges in a composite laminate aerospace application having two or more zones, wherein the zones have various numbers of plies of different fiber orientations, the method comprising the steps of:

determining the number of zones for the composite laminate aerospace application;

determining the number of plies of each fiber orientation required in each zone;

generating a master zone that notionally includes, for plies having each different fiber orientation, the maximum number of plies having a respective fiber orientation required in any one zone;

sequencing the plies of the master zone using a predefined series of design rules to define a stacking sequence of plies in the master zone; ~~and~~

arranging the plies of each zone based upon the stacking sequence of plies in the master zone; and

providing instructions configured to at least partially direct manufacture of the composite laminate based upon an arrangement of the plies of each zone.

12. (Original) A method according to Claim 11 wherein arranging the plies of each zone comprises calculating values for a second predefined series of design rules for each zone.

13. (Original) A method according to Claim 11 wherein arranging the plies of each zone comprises utilizing a transformation matrix for each zone to correlate the plies of the master zone to the plies of each zone.

14. (Original) A method according to Claim 13 wherein arranging the plies of each zone comprises the steps of:

calculating a weighted solid/void differential for each zone; and

minimizing the weighted solid/void differential for each zone.

15. (Original) A method according to Claim 14 wherein calculating the weighted solid/void differential comprises the steps of:

subtracting a solid edge length of a single ply of the zone from a void edge length of the single ply of the zone to determine a difference; and

summing all the differences of the plies of the zone.

16. (Original) A method according to Claim 15 wherein calculating the weighted solid/void differential comprises normalizing the solid edge lengths and the void edge lengths before subtracting the solid edge length from the void edge length.

17. (Currently amended) An apparatus for reducing internal ply edges in a composite laminate having two or more zones, wherein the zones have various numbers of plies having different properties, the apparatus comprising:

processing circuitry for: (i) determining the number of plies having each property required in each zone; (ii) generating a master zone that notionally includes, for plies having each different property, the maximum number of plies having a respective property required in any one zone; (iii) sequencing the plies of the master zone using a predefined series of design rules to define a stacking sequence of plies in the master zone; ~~and~~ (iv) arranging the plies of each zone based upon the stacking sequence of plies in the master zone; and (v) providing instructions configured to at least partially direct manufacture of the composite laminate based upon an arrangement of the plies of each zone.

18. (Original) An apparatus according to Claim 17 wherein the processing circuitry determines the number of plies of each different fiber orientation.

19. (Original) An apparatus according to Claim 17 wherein the processing circuitry calculates values for a second predefined series of design rules for each zone.

20. (Original) An apparatus according to Claim 17 wherein the processing circuitry utilizes a transformation matrix for each zone to correlate the plies of the master zone to the plies of each zone, wherein the transformation matrix is governed by the predefined series of design rules.

21. (Original) An apparatus according to Claim 20 wherein the processing circuitry calculates a weighted solid/void differential for each zone, and wherein the processing circuitry minimizes the weighted solid/void differential for each zone.

22. (Original) An apparatus according to Claim 21 wherein the processing circuitry subtracts a solid edge length of a single ply of the zone from a void edge length of the single ply of the zone to determine a difference, and wherein the processing circuitry sums all the differences of the plies of the zone.

23. (Original) An apparatus according to Claim 22 wherein the processing circuitry normalizes the solid edge lengths and the void edge lengths before subtracting the solid edge lengths from the void edge lengths.

24. (Original) An apparatus according to Claim 17 wherein the processing circuitry determines the number of zones for the composite laminate prior to determining the number of plies having each property required in each zone.

25. (Currently amended) A computer program product for reducing internal ply edges in a composite laminate having two or more zones, wherein the zones have various numbers of plies having different properties, the computer program product comprising a computer-readable storage medium having computer-readable program instructions stored therein, the computer-readable program portions comprising:

a first executable portion for determining the number of plies having each property required in each zone;

a second executable portion for generating a master zone that notionally includes, for plies having each different property, the maximum number of plies having a respective property required in any one zone;

a third executable portion for sequencing the plies of the master zone using a predefined series of design rules to define a stacking sequence of plies in the master zone; ~~and~~

a fourth executable portion for arranging the plies of each zone based upon the stacking sequence of plies in the master zone; and

a fifth executable portion for providing instructions configured to at least partially direct manufacture of the composite laminate based upon an arrangement of the plies of each zone.

26. (Original) A computer program product according to Claim 25 wherein the first executable portion is further capable of determining the number of plies of each different fiber orientation.

27. (Original) A computer program product according to Claim 25 wherein the fourth executable portion is further capable of calculating values for a second predefined series of design rules for each zone.

28. (Original) A computer program product according to Claim 25 wherein the fourth executable portion is further capable of utilizing a transformation matrix for each zone to correlate the plies of the master zone to the plies of each zone, wherein the transformation matrix is governed by the predefined series of design rules.

29. (Original) A computer program product according to Claim 28 wherein the fourth executable portion is further capable of calculating a weighted solid/void differential for each zone and is capable of minimizing the weighted solid/void differential for each zone.

30. (Original) A computer program product according to Claim 29 wherein the fourth executable portion is further capable of subtracting a solid edge length of a single ply of the zone from a void edge length of the single ply of the zone to determine a difference and is capable of summing all the differences of the plies of the zone.

31. (Original) A computer program product according to Claim 30 wherein the fourth executable portion is further capable of normalizing the solid edge lengths and the void edge lengths before subtracting the solid edge length from the void edge length.